

Title (en)
Height sensor and air spring device incorporating the same

Title (de)
Einen Abstandsfühler enthaltende Luftfeder

Title (fr)
Ressort pneumatique comprenant un capteur de distances

Publication
EP 0551986 B1 19970326 (EN)

Application
EP 93300084 A 19930107

Priority
JP 235592 A 19920109

Abstract (en)
[origin: EP0551986A1] A height sensor for determining the height of an object from a surface to be measured (36) on the basis of a difference in optical path lengths from first and second light-emitting elements (10, 12) disposed at positions spaced apart from the surface to be measured to the surface to be measured. The height sensor (34) includes: a three-dimensional mirror (64) arranged to reflect two beams emitted from the first and second light-emitting elements (10, 12) and to cause optical paths of the beams to be brought into close proximity to each other; and a light-receiving element (16) for receiving the beams reflected by the surface to be measured (36) and for outputting a signal corresponding to a quantity of light received. A reflecting mirror (66) is provided for introducing the beam from the first light-emitting element (10) onto a first slanting surface (r1) of the three-dimensional mirror (64) to produce an optical path difference. <IMAGE> <IMAGE>

IPC 1-7
G01S 17/08; **G01B 11/02**; **B60G 17/015**

IPC 8 full level
F16F 9/04 (2006.01); **B60G 17/019** (2006.01); **F16F 9/32** (2006.01); **G01B 11/00** (2006.01); **G01B 11/02** (2006.01); **G01B 11/06** (2006.01); **G01S 17/08** (2006.01)

CPC (source: EP US)
B60G 17/019 (2013.01 - EP US); **G01B 11/026** (2013.01 - EP US); **G01B 11/0608** (2013.01 - EP US); **G01S 17/08** (2013.01 - EP US); **B60G 2202/152** (2013.01 - EP US); **B60G 2204/111** (2013.01 - EP US); **B60G 2400/252** (2013.01 - EP US); **B60G 2401/14** (2013.01 - EP US)

Cited by
EP1624278A1; EP0890463A3; ES2162733A1; DE102008033820B4; WO2004007264A1; WO0189863A3; US6991239B2; US7306239B2; US11399995B2; US12023285B2; US10926756B2; US11794722B2; USD846452S; USD876994S; US10908045B2; US11679044B2; US10802495B2; US11720115B2; EP2145781A1; DE102008033820A1; US10220843B2; US10752243B2; US11681293B2

Designated contracting state (EPC)
DE FR GB IT

DOCDB simple family (publication)
EP 0551986 A1 19930721; **EP 0551986 B1 19970326**; DE 69309117 D1 19970430; DE 69309117 T2 19970703; JP 3187496 B2 20010711; JP H06201331 A 19940719; US 5337137 A 19940809

DOCDB simple family (application)
EP 93300084 A 19930107; DE 69309117 T 19930107; JP 235592 A 19920109; US 99787092 A 19921229